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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,973	09/22/2006	Satoshi Asari	33082M355	5621

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WASHINGTON, DC 20036

EXAMINER

MITCHELL, JOHN-PAUL N

ART UNIT	PAPER NUMBER
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3652

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09/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,973	Applicant(s) ASARI ET AL.	
	Examiner John-Paul N. Mitchell	Art Unit 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20060922, 20061206, 20070112, 20080131.

DETAILED ACTION

Claim Objections

Claim 4 is objected to because of the following informalities: Applicant recites “at least one of the substrate support device is;” “device” should be pluralized. Appropriate correction is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tometsuka (PG Pub US 2001/0052325 A1) in view of Lee et al. (US Patent 5,810,935). Tometsuka teaches a substrate processing apparatus comprising:

a heat treatment furnace (Fig. 1, 1) having a furnace throat (proximate 6), a lid (27) that hermetically closes the furnace throat, a holder (21) disposed on the lid that holds a plurality of process objects (20) at vertical intervals via ring-shaped support plates (24), an elevating mechanism (12) that moves the lid vertically, a transfer mechanism (50) including a plurality of substrate support devices (55) spaced at intervals, a container (60), wherein the transfer mechanism has gripping mechanisms with fixed (54) and movable (55) engagement members;

wherein each of the ring-shaped support plates has cutouts (25) for preventing the ring-shaped support plate from colliding with the fixed engagement member and the movable engagement member.

Tometsuka fails to teach a gripping mechanism configured to grip a process object on an under side of respective one of the substrate support devices, i.e. on the top side of the process object. Lee et al. teaches:

a gripping mechanism (Fig. 1b) configured to grip a process object (300) on an under side of the substrate support device, said gripping mechanism having a fixed (102) and movable (110) engagement member, respectively engaging the front and rear edge portions of the process object;

wherein each of the substrate support devices is provided with seats (Fig. 3b, 121) such that a gap is formed between a lower surface of the substrate supporting device and an upper surface of the process object.

Simple substitution of one known element for another would yield predictable results, and thus, at the time of invention, it would have been obvious to a person having ordinary skill in the art to use substitute the mechanism taught by Lee et al. in the substrate processing apparatus taught by Tometsuka.

Further, Tometsuka in view of Lee et al. teach a method of transferring process objects in a vertical heat treatment system includes the steps of:

placing each of the substrate support devices above respective one of the process objects positioned in their transfer start position, moving the movable engagement members towards the fixed engagement members of grip the process

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objects, moving the substrate support devices each gripping the process object to a position above their transfer target position, and moving the movable engagement members away from the fixed engagement members to release the process objects whereby the process objects are mounted on their transfer target position.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tometsuka in view of Lee et al. as applied to claims 1-3 and 6 above, and further in view of Ohsawa et al. (US Patent 5,813,819). Tometsuka in view of Lee et al. teach a substrate processing apparatus as recited above, but fail to provide a mapping sensor. Oshawa et al. teach:

Wherein at least one of the substrate support devices is provided with a mapping sensor (Fig. 15, 110) which is configured to detect a position of a detection object.

At the time of invention, it would have been obvious to a person having ordinary skill in the art to provide a mapping sensor as taught by Oshawa et al. to the apparatus as taught by Tometsuka in order to monitor the current load and current state of the transfer mechanism.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tometsuka in view of Lee et al. as applied to claims 1-3 and 6 above, and further in view of Suzuki et al. (US Patent 6,758,876 B2). Tometsuka in view of Lee et al. teach a substrate processing apparatus as recited above, but fail to teach said engagement members being formed of a heat-resistant resin such as PEEK. Suzuki et al. teach:

a transport apparatus constructed from a material such as PC, PEEK, PEI and the like (para. 105, ln. 9-11).

Suzuki et al. teach that use of such heat-resistant resins are obvious and well known in the art. Thus it would have been obvious at the time of invention to a person having ordinary skill to form engagement members, as taught by Tometsuka in view of Lee et al., out of a heat-resistant resin such as PEEK, in order to increase the sustainability and lifetime of parts inside the substrate processing apparatus.

Conclusion

The prior art made of record and not relied upon, but considered pertinent to applicant's disclosure, includes: Ishii (2001), Yamamoto et al. (2002), Kitayama et al. (1995), Asano (2004), Menon et al. (2004), Holbrooks (2000), Malin et al. (1992), and Hofer et al. (2005).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John-Paul N. Mitchell whose telephone number is (571) 270-5226. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on (571)272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Saúl J. Rodríguez/
Supervisory Patent Examiner, Art
Unit 3652

J-PNM